



August 16, 1983

AUG 26 RECD

Mr. Raymond C. Nye
Environmental Protection Specialist
U.S. EPA - Region X
1200 Sixth Avenue
Seattle, WA 98101

SUBJECT: Turbine and Heater Units - Prudhoe Bay PSD
Permits

Dear Ray:

This letter is in response to your letter of April 5, 1983 requesting information on turbine and heater units in the Prudhoe Bay field eastern operating area under existing PSD permits. Your letter requested:

- 1) identification of installed and ordered units
- 2) source test dates for permitted units
- 3) unit capacity ordered matched to unit capacity permitted

The charts attached provide the requested information.

There are variations to the permits shown in the charts that we believe are within the scope of the applications. I have included a discussion of these variations to supplement your information request.

First, the Seawater Injection Plant East (SIPE) contains four 2500 HP turbines instead of the four 4000 HP turbines itemized in your permit list. This variation of horsepower is addressed within Table 3-2 of the Technical Note of Air Quality Impacts in Prudhoe Bay Oil Field, December 1980, Radian Corp. And, the proposed heaters to be installed are two 185 MMBtu/hr heaters included in the 750 MMBtu/hr heater capacity permitted at the SIPE.

Second, the Seawater Treatment Plant (STP) plans to operate six 120 MMBtu/hr heaters rather than the permitted heaters listed below. However, the proposed units should result in less emissions as shown.

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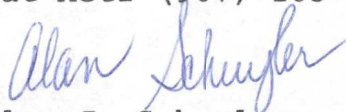
<u>Permitted Heaters</u>	<u>g/Sec NO_x</u>	<u>Proposed Heaters</u>	<u>g/Sec NO_x</u>
3-100MM	7.88	6-120MM	17.85
2-60 MM	2.85		
3-100MM	7.2		
TOTAL	18.93		17.85

Note: All calculations are based on heater emission factors included in the PSD Permit Application for the Prudhoe Bay Unit Waterflood, September 1979. Radian Corp.

There are also several turbines and heaters shown on the lists as permitted but not currently planned. The location and required capacity requirements of these sources is currently being reevaluated. As noted on the attached lists sealift and subsequent start-up of these units would occur no earlier than 1986.

Finally, please note Michael Johnston's letter (February 22, 1980), which discusses the resulting permit. He indicated that the permit will specify the turbine size and heat recovery combination that describes the worst case ambient impact scenario. This preliminary determination would indicate the worst case scenario would be permitted, but that the permit can be changed without public comment as long as the variation is within the scope of the application. We believe that all of the variations of the permitted sizes shown on the attached charts are within the scope of the existing permits.

If you have any questions about the discussion of permitted units or need additional information for the attached charts, please contact me (907) 263-4307 or W. Pat Metz (907) 263-4306.


Alan J. Schuyler
Senior Engineer
Regulatory Compliance

AJS:tlh-0016
Attachment

cc: Steve Torok, EPA-Juneau - w/attachment
Leonard Verrelli, ADEC-Juneau - w/attachment

PSD PERMITTED AIR SOURCES

FLOW STATION 1 (FS-1)

<u>PSD Permit</u>	<u>Quantity</u>	<u>Size</u>	<u>Sealift Year</u>	<u>Startup Date</u>	<u>Test Date</u>
(II) X8009	(1) (2)	5 MHP	1981	1984	1984
(II) X8009	(1) (2)	5 MHP	1985	1986	1986
(II) X8009	(2) (3)	36 MHP	1983	1984	1984
(II) X8009	(1)	36 MHP	P	-	-
(IV) X8113	1 (1)	5 MHP	P	-	-
(IV) X8113	1 (1)	125 MM	P	-	-
(IV) X8113	1 (1)	36 MHP	P	-	-

P = Currently permitted but will not be constructed before 1988

MM = 1×10^6 Btu/hr.

MHP = 1000 HP

PSD PERMITTED AIR SOURCES
INJECTION PLANT-EAST (IPE)

<u>PSD Permit</u>	<u>Quantity</u>	<u>Size</u>	<u>Quantity</u>	<u>Actual Size</u>	<u>Sealift Year</u>	<u>Startup Date</u>	<u>Test Date</u>
(S) X7905	4 (4)	4 MHP	4	2.5 MHP	1983	1984	1984
(S) X7905	1 (1)	25 MHP	-				
(S) X7905	750 MM Capacity	<i>Hester</i>	2	185.0 MM	1983	1984	1984
(WF) X8101	5 (5)	16 MHP	2	29.1 MHP	1983	1984	1984
(WF) X8101	2 (2)	50 MM	2	50.0 MM	1983	1984	1984

MM = 1×10^6 Btu/hr.
MHP = 1000 HP
WF = Waterflood
S = Swap I

PSD PERMITTED AIR SOURCES
SEAWATER TREATMENT PLANT (STP)

<u>PSD Permit</u>	<u>Quantity</u>	<u>Size</u>	<u>Quantity</u>	<u>Actual Size</u>	<u>Sealift Year</u>	<u>Startup Date</u>	<u>Test Date</u>
(WF) X8101	3 (3)	110 MM	6	120 MM	1983	1984	1984
(WF) X8101	2 (2)	60 MM					
(S) X8101	3	100 MM					
(IV) X8113	8 (8)	4 MHP					

MM = 1×10^6 Btu/hr.
MHP = 1000 HP
WF = Waterflood
S = Swap I

PSD PERMITTED AIR SOURCE

FLOW STATION 2 (FS-2)

<u>PSD Permit</u>	<u>Quantity</u>	<u>Size</u>	<u>Sealift Year</u>	<u>Startup Date</u>	<u>Test Date</u>
(II) X8009	2	36 MHP	1981	1982	1983
(II) X8009	1 (4)	36 MHP	1983	1984	1984
(II) X8009	1	36 MHP	P	-	-
(II) X8009	1 (2)	5 MHP	1980	1982	1983
(II) X8009	1	5 MHP	1982	1983	1983
(II) X8009	1 (1)	100 MM	P	-	-
(IV) X8113	2 (2)	5 MHP	1985	1986	1986

P = Currently permitted but will not be constructed before 1988
 MM = 1×10^6 Btu/hr.
 MHP = 1000 HP

OK
PSD PERMITTED AIR SOURCES

FLOW STATION 3 (FS-3)

<u>PSD Permit</u>	<u>Quantity</u>	<u>Size</u>	<u>Sealift Year</u>	<u>Startup Date</u>	<u>Test Date</u>
(II) X8009	2	36 MHP	1982	1983	1983
(II) X8009	1 (4)	36 MHP	1983	1984	1984
(II) X8009	1	36 MHP	P	-	-
(II) X8009	1 (2)	5 MHP	1980	1983	1983
(II) X8009	1	5 MHP	1982	1983	1983
(IV) X8113	2 (2)	5 MHP	1984	1985	1985
(IV) X8113	1 (1)	125 MM	P	-	-

P = Currently permitted but will not be constructed before 1988

MM = 1×10^6 Btu/hr.

MHP = 1000 HP

OK

PSD PERMITTED AIR SOURCE

CENTRAL COMPRESSOR PLANT (CCP)

<u>PSD Permit</u>	<u>Quantity</u>	<u>Size</u>	<u>Sealift Year</u>	<u>Startup Date</u>	<u>Test Date</u>
(II) X8009	1 (1)	25 MHP	1981	1982	1982
(II) X8009	1 (1)	26 MM	P	-	-

P = Currently permitted but will not be constructed before 1988
MM = 1×10^6 Btu/hr.
MHP = 1000 HP